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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/663,757

09/17/2003

Eiji Hayashi

Q77556

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65565 7590 04/16/2007
SUGHRUE-265550
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EXAMINER

BOES, TERENCE

ART UNIT

PAPER NUMBER

3682

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/663,757

Applicant(s)

HAYASHI, EIJI

Examiner

Terence Boes

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-14, 16 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langley US 5,245,884 in view of Schlenker US 4,953,419.

Langley discloses:

- a screw shaft (1) including a spiral-shaped screw groove formed in an outer peripheral surface thereof;
- a nut (6) movably fitted with the screw shaft and including a screw groove formed in an inner peripheral surface thereof so as to correspond to the screw groove of the screw shaft;
- a plurality of balls (C2/L28) rollably disposed in a raceway formed between the two screw grooves;
- at least one side cap (8) mounted on a circumferential outer surface of the nut and including a ball circulation passage (9) substantially extending in a longitudinal direction of the screw shaft and a ball scooping up portion for scooping up the balls rolling along the raceway and returning the balls to the raceway (portion of side cap 8 which scoops up balls);

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- wherein the two screw grooves are respectively formed as multiple thread screws (3, 4) and one of the side caps is disposed on each of the multiple threads (C2/L23-25);
- wherein an attachment direction of the end cap is perpendicular to a longitudinal direction of the screw shaft (see figure 3b),
- wherein an attachment hole (see attachment holes on left and right side of 6 in figure 3b) for the side cap is formed on the circumferential surface of the nut, and the side cap is attached to the attachment hole.
- wherein the side cap further comprises a pair of ball scooping up portions (both inlet and outlet function as ball scooping up portions) and a cap main body (8); which are continuous with each other so as not to form step portions.
- wherein the nut further comprises an axial end surface (see figure 3a, left and right sides are axial end surfaces), and the circumferential outer surface is a cylindrical surface extending perpendicular to the axial end surface see figures 1 and 3a).

Langley discloses all of the claimed subject matter as described above. Langley does not disclose a ball scooping up portion in a direction coincident with a lead angle of two screw grooves.

Schlenker teaches a ball scooping up direction coincident with a lead angle of two screw grooves (see figure 6) for the purpose of avoiding abrupt travel path changes of balls thus improving efficiency (C3/L1-68).

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It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Langley and provide a ball scooping up portion in a direction coincident with a lead angle of two screw grooves, as taught by Schlenker, for the purpose of avoiding abrupt travel path changes of balls thus improving efficiency.

Response to Arguments

2. Applicant's arguments with respect to claims 15, 17, and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terence Boes whose telephone number is (571) 272-4898. The examiner can normally be reached on Monday - Friday 9:00 AM - 4:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TB

TB

4/11/07


Thomas R. Hannon
Primary Examiner